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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/528,194

11/14/2005

Ian Leitch McDougall

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EXAMINER

BARRERA, RAMON M

ART UNIT

PAPER NUMBER

2832

MAIL DATE

DELIVERY MODE

06/11/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/528,194	MCDOUGALL ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Ramon M. Barrera	2832	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 17 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>3/17/05</u> | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “coils are actively shielded” (claim 4), “the second set of coils comprises at least two pairs of coils”(claim 8), “wherein the second homogeneous region is substantially disk shaped”, and “comprising an additional set of second coils located adjacent an opposite side of the first set of coils to the one set of second coils” (claim 21) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the

examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-13, 15, 16 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by McDougall and Frese.

McDougall discloses a magnet assembly comprising first and second sets of coils (either 1-5 or 10) for generating respective magnetic fields, wherein the coils are constructed and arranged such that under working conditions, a first homogeneous region can be generated within the an envelope (Frese/col. 1, lines 11 and 24-26) defined by the magnet assembly and a second homogeneous region can be generated outside the envelope, the resultant magnetic field in each region being sufficiently homogeneous to enable a NMR process to be performed on an object in the region; wherein the coils are operable to generate the first and second homogeneous regions simultaneously; wherein the first set of coils define a solenoid 10; wherein the first set of coils are actively shielded 9; wherein the second set of coils (1-5) are nested; wherein the nested coils are substantially coplanar; wherein at least two of the coils of the second set are arranged to carry working currents in opposite senses (col. 2,

lines 2-5); wherein the second set of coils comprises at least two pairs of coils; wherein in the first homogeneous region each pair of coils generates a substantially zero first order magnetic field gradient and substantially equal second order magnetic field gradients of opposite senses (col. 2, lines 7-9, col. 3, lines 40-46); wherein the first and second sets of coils are made from high temperature superconductor (col.2, lines 32-33 and lines 52-55); wherein the second set of coils are located within a cryostat (col. 3, lines 22-24); wherein the second set of coils are self-contained so that the second set of coils can be separated from the first set of coils without compromising the operational integrity of the first set of coils; wherein the second homogeneous region is substantially spherical 7 (col. 3, line 63); wherein the first homogeneous region is located within the first set of coils; wherein the magnetic field strength of each homogeneous region varies by no more than 100ppm(col. 2, line 23); further inherently comprising a power supply coupled to the coils so as to continuously energize the (resistive-col. 1, line 63) coils.

4. Claims 1-3, 15, 18 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Frese.

Frese, in fig. 1, discloses a magnet assembly comprising first 2 and second 4 sets of coils for generating respective magnetic fields, wherein the coils are constructed and arranged such that under working conditions, a first homogeneous region can be generated within the an envelope defined by the magnet assembly and a second homogeneous region can be generated outside

the envelope 10 (col. 3, lines 18-21), the resultant magnetic field in each region being sufficiently homogeneous to enable a NMR process to be performed on an object in the region; wherein the coils are operable to generate the first and second homogeneous regions simultaneously; wherein the first set of coils define a solenoid 2; wherein the second set of coils are self-contained so that the second set of coils can be separated from the first set of coils without compromising the operational integrity of the first set of coils; wherein the first homogeneous region is located within the first set of coils; further inherently comprising a power supply coupled to the coils so as to continuously energize the coils.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over McDougall and Frese, cited above.

McDougall and Frese did not disclose wherein the first and second sets of coils are located within the same cryostat. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ a single

cryostat for the purpose of avoiding the operation, maintenance, and monitoring of two separate cryostats.

7. Claims 4, 10-14, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Frese in view of McDougall, cited above.

Frese did not disclose wherein the first set of coils are actively shielded, nor wherein the first and second sets of coils are made from high temperature superconductor, nor wherein the second set of coils are located within a cryostat or the same cryostat, nor wherein the magnetic field strength of each homogeneous region varies by no more than 100ppm. McDougall discloses wherein the first set of coils are actively shielded for the purpose of preventing stray flux, wherein the first and second sets of coils are made from high temperature superconductor for the purpose of enabling high magnetic fields in a compact structure, wherein the second set of coils are located within a cryostat for the purpose of sustaining superconductivity, and wherein the magnetic field strength of each homogeneous region varies by no more than 100ppm, a generally accepted standard of homogeneity. Since McDougall and Frese are both from the same field of endeavor, the purpose disclosed by McDougall would have been recognized in the pertinent art of Frese. It would have been obvious at the time the invention was made to a person having ordinary skill in the art employ McDougall's stated features in Frese for the given purposes. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ a single cryostat in Frese in view of McDougall for the purpose of avoiding the operation, maintenance, and monitoring of two separate cryostats.

***Allowable Subject Matter***

8. Claims 17 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: Neither Frese nor McDougall taught or reasonably suggested wherein the second homogeneous region is substantially disk shaped and has a magnetic field gradient in the axial direction, nor an additional set of second coils located adjacent an opposite side of the first set of coils to the one set of second coils.

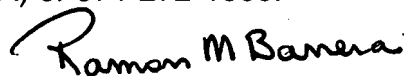
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramon M. Barrera whose telephone number is (571) 272-1987. The examiner can normally be reached on Monday through Friday from 11 to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Art Unit: 2832

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Ramon M Barrera  
Primary Examiner  
Art Unit 2832

rmb